



—“UAVS-Protecting the Point”



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*U.S. Army UAV Systems Project Office
June 2002*

Program Update: Army Unmanned Aerial Vehicle Systems

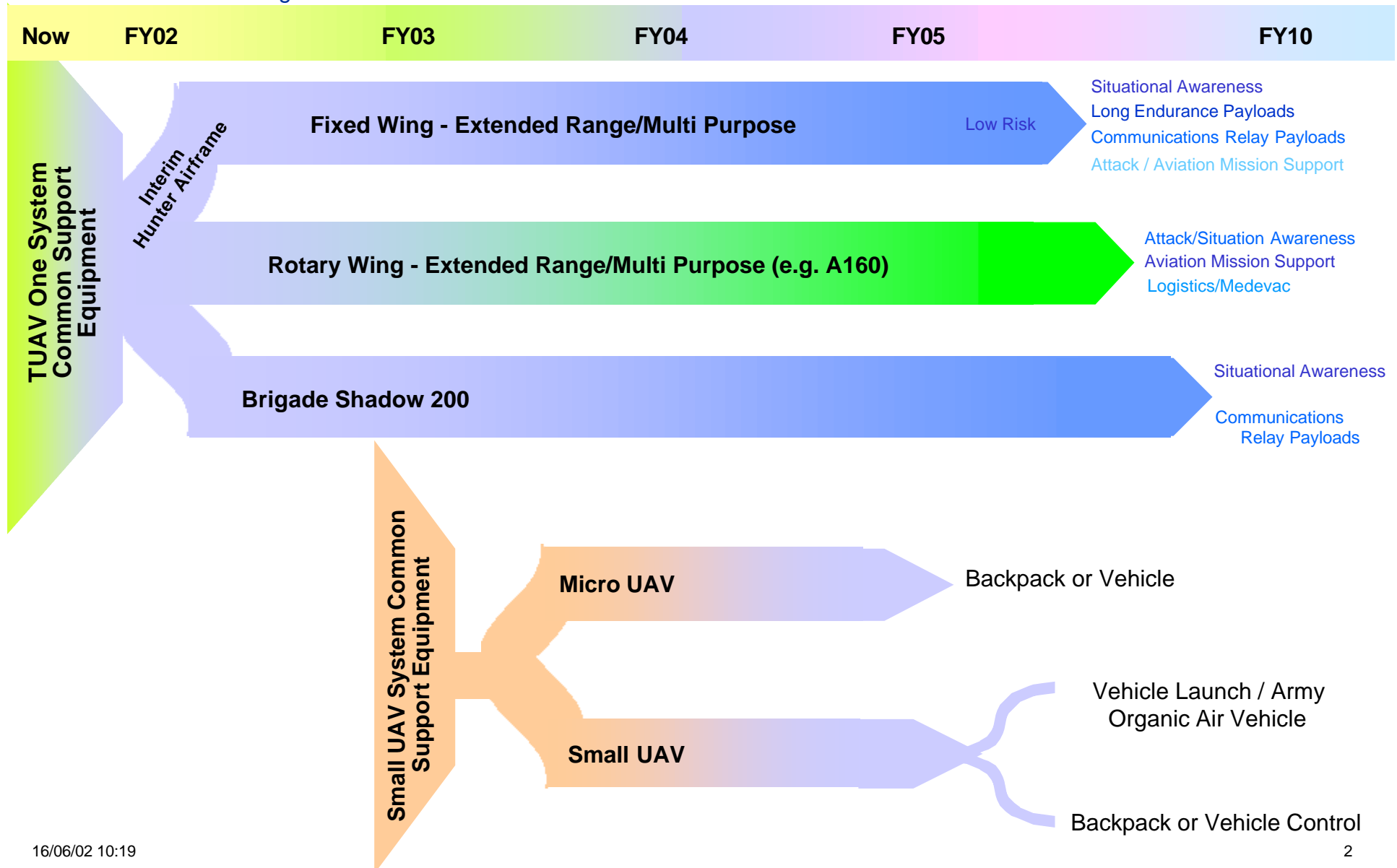
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Army UAV Path



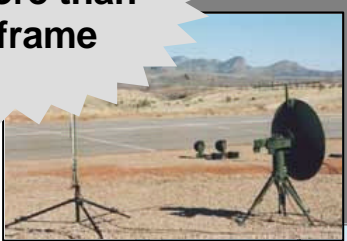
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One Army UAV System Approach

The system is much more than an airframe

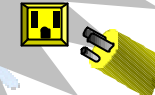
Ground Data Terminal



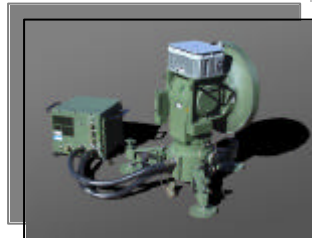
Launcher



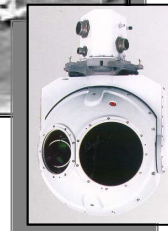
Air Vehicles



TALS



Payloads



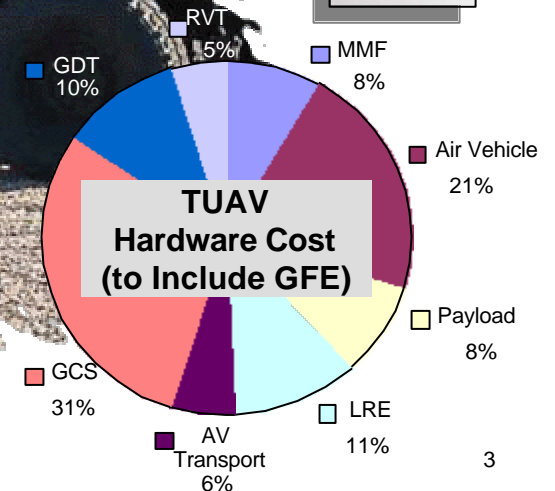
Portable Ground Control Station & Data Terminal



Personnel



Contact Teams





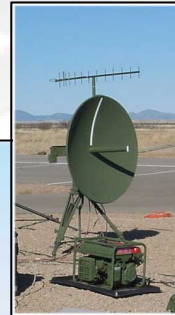
Shadow 200 System



“TUAV-Protecting the Point”



Ground Data Terminal x 2



Remote Video Terminal & Antenna x 4



Portable Ground Control Station & Data Terminal

Maintenance Section



Air Vehicle



Personnel/Equipment Transport



Equipment Trailer



Maintenance Section Multifunctional



Personnel

4 x 33W (EW System Repairer)
3 x 52D (Engine Mechanic)

4

System

Air Vehicles with Payloads x 3



Arresting Net



TALS



Air Vehicle Transport & Launcher Trailer



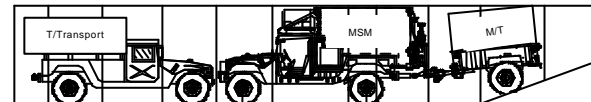
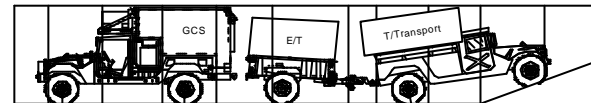
Equipment Trailer



Personnel/Equipment Transport

Deployability / Transportability

C130 Transportable



Personnel

1 x 35D (Platoon Leader)
1 x 350U (UAV Warrant Officer)
1 x 96U (Platoon Sergeant)
12 x 96 U (Air Vehicle Operators)

16/06/02 10:19



Shadow 200 System Update



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- Many minor improvements to airframe and training/procedures since last spring
- Concluded several highly successful OPTEMPO exercises with troops during winter
- Cold weather, C4I, mobility and lift demonstrations/tests successfully accomplished
- LRIP '02 of 5 systems awarded in March
- IOT&E – 23 April – 03 May 2002
 - ✓ 53 missions conducted
 - ✓ Average flight duration 4.5 hours
 - ✓ Average daily flight hours 17.5
 - ✓ Exceeded operational tempo
 - ✓ Anticipated positive report

Shadow 200	
Flights	900
Hours	1703.2



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Hunter System Update



Hunter	
Flights	6146
Hours	21,754

- Hunter has supported III Corps since 1996
 - ✓ Operational deployments in support of KFOR in 99, 00, 01, 02
- Warning order in early FY02 to determine feasibility and unit size for additional Corps fieldings
- Emerging Corps structure is platoon (+)/company (-) size unit
- Systems in place at III CORPS (Fort Hood), Training Base (Fort Huachuca), Joint Readiness Training Center (Fort Polk), Training Base (Fort Huachuca)
- 21 Payload/Sensor Demonstrations
- 4 Operational Deployments to Macedonia
- 18 Joint Readiness Training Center Exercises (JRTC)
- Lowest mishap rate of any U.S. owned UAV

Prime Contractor: TRW



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Upcoming Events



• Shadow

- Full Rate Production (FRP) Milestone Decision
- FRP Contract Award
- Fielding
 - ✓ 2nd Infantry Division (IBCT)
 - ✓ 4 Infantry Division
 - ✓ 25 Infantry Division (IBCT)
 - ✓ 1st Cavalry Division

• Hunter

- Hunter Air Vehicle and Payload Control into Shadow Ground Control Station
- SAR/MTI Military Utility Assessment
- Fielding
 - ✓ XVIII Airborne Corps
 - ✓ V Corps



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Future Army UAVs

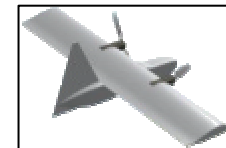
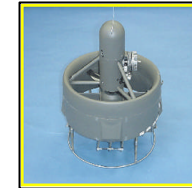


Extended Range/Multi-Purpose

- Hunter Replacement
- ER/MP **Draft** Requirements include:
 - Division/Corps UAV
 - Multiple Payloads
 - 200-300km Range
 - 10-14 hours flight time
 - Heavy Fuel Engine
- Acquisition Strategy:
 - Competition for an ER/MP airframe only
 - Utilize Common Components of Shadow Ground Station and Ground Equipment
- Potential Timelines:
 - FY03-04 – RFP, Downselect to two Airframes, Integrate on Shadow Ground equipment, Fly-off
 - FY04 –05 - Final Integration, System Design, Test, Provision
 - FY06 Initial Fielding

Small UAV Concept

- SUAV **Draft** Requirements include:
 - BN and Below UAV
 - O-20km Range
 - 60-90 min flight time
 - Very low cost/easy to operate
- Acquisition Strategy
 - One system concept
 - Ground station capable of control
 - Multiple small UAVs
- Potential Timelines:
 - FY05 transfer of MAV ACTD management to PM TUAV
 - FY05 initial fielding



Army has committed to Hunter UAV as the ER/MP Surrogate through '07





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Evolving Capabilities

One System Update



- Hunter is the interim Extended Range/Multi-Purpose (ER/MP) Air Vehicle
- Have initiated integration of the Hunter Air Vehicle with Shadow 200 Ground Control Station
 - ✓ Integrating hardware and software
 - ✓ Transition Hunter to Auto-Land capability
 - ✓ Common Ground Station in FY03
- Sets stage for ER/MP to utilize existing converted Hunter ground equipment
- Anticipated savings from
 - ✓ Reduced logistics (common spares/procedures)
 - ✓ Reduced training (standard equipment/similar interfaces)
 - ✓ Auto-land/take-off replaces external pilot

*Hunter's first
Autoland
4 May 02*

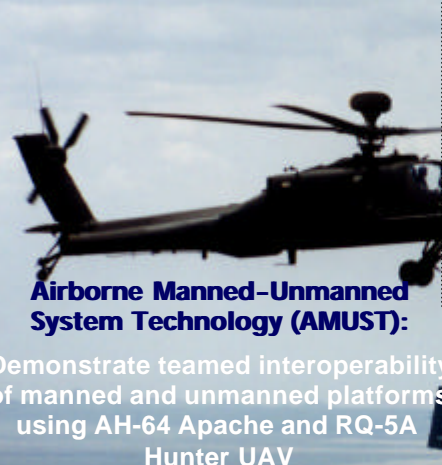


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Evolving TUAV Capabilities Include ...



Manned/Unmanned Teaming



Accomplishments

- The Apache received direct video feed (Level 2 control) from the UAV at all times.
- The AH-64 controlled both the UAV and the payload cameras (Level 4 control) for 76 minutes.

When in control:

- Apache directed the aircraft flight patterns by waypoint navigation to the target area
- Slewed the camera to identify the targets and send video to ground locations.

UAV Payload Priorities

Brigade	Division/Corps
CRP Light – VHF SINCGARS or EPLRS	CRP Heavy
Synthetic Aperture Radar/Moving Target Indicator	SIGINT
CRP Medium – (Block One with Tactical Internet)	Mine Detection
Illuminator (Point & Shoot)	Chemical/Biological
Laser Range Finder/Designator	Foliage Penetration
Hyperspectral/Ultraspectral Imaging	Electronic Attack

Source: CG TRADOC, 12 Jul 00

Armed UAV's

- Planned demo mounts Brilliant Anti-tank (BAT) Submunition on Hunter

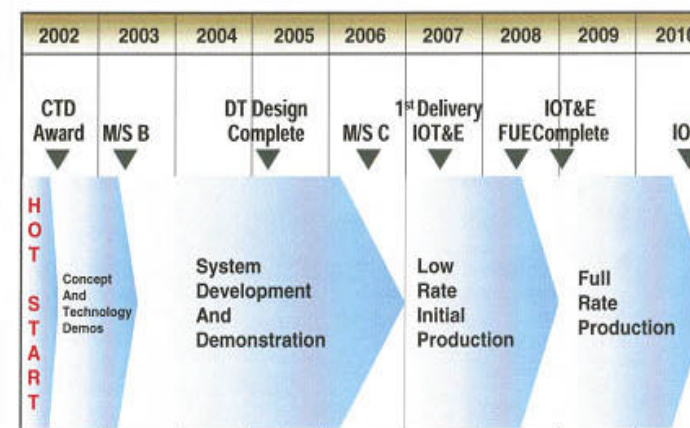
- BAT is routinely dropped from Cessna aircraft similar to Hunter
- BAT deploys from ATACMS at Hunter Operational Altitudes
- BAT operates autonomously once dropped from Hunter, simplifying integration

Concept

- Mount 2 BAT submunitions, one under each wing
- Demo is in two phases over one year



Future Combat System Unmanned Air Vehicles

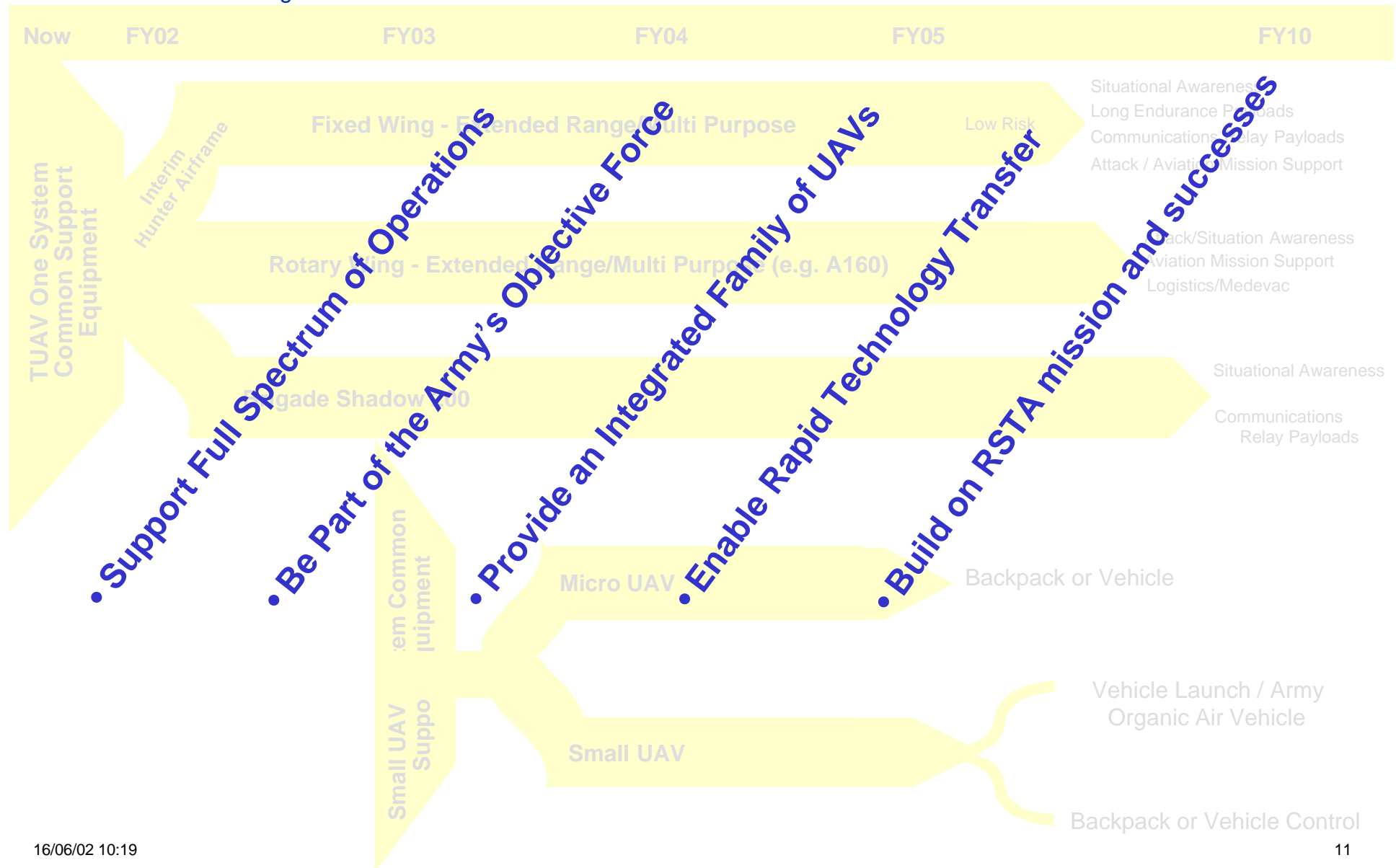




The Army UAV Path Will ...



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Summary



—“UAVS-Protecting the Point”

- Army integration of all UAVs into land warfare capability
 - ✓ Army Senior leadership commitment
 - ✓ Maneuver, protection, information, firepower
 - ✓ Exploit RDT&E/DARPA efforts
 - ✓ Combat and combat support roles – communications, weapons, logistics, medical
 - ✓ Provide software, training, logistics, simulation/trainers, payloads
- Army UAVs are...
 - ✓ ER/MP [Hunter], Division, Corps
 - ✓ Shadow 200, Brigade
 - ✓ SUAV/MUAV, Battalion and below
- One System approach is the foundation of Army's UAV capability

